



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2062K
Plant ID No.: 079-00072
Applicant: Toyota Motor Manufacturing West Virginia (TMMWV)
Facility Name: Buffalo Plant
Location: Putnam County
SIC Code: 3714
Application Type: Modification
Received Date: February 28, 2011
Engineer Assigned: Joe Kessler
Fee Amount: \$1,000
Date Received: March 4, 2011
Complete Date: August 31, 2011
Due Date: November 28, 2011
Applicant Ad Date: March 2, 2011
Newspaper: *The Charleston Gazette*
UTM's: Easting: 413.50 km Northing: 4,272.2 km Zone: 17
Description: This modification primarily addresses the following: (1) after-the-fact increase of emissions from the Engine Test Cells and Test Firing Benches and (2) retrofit of Catalytic Converters on the Engine Test Cells for control of CO/VOC/NO_x emissions. Additional substantive changes include the addition of updated emission limits and compliance language for all combustion sources mistakenly omitted from R13-2062J, the installation of two new storage tanks, and the removal of Project Activity 13 from the permit. The Permit Application was submitted pursuant to Item 9 of Consent Order CO-R13-E-2010-14.

In 2009, TMMWV voluntarily reported to the DAQ that emissions from the engine test cells at the facility were greater than the emissions as previously reported in various permit applications (and listed in permits up to R13-2062I). Based on this admission, on June 21, 2010, TMMWV entered into Consent Order CO-R13-E-2010-14 that substantively required them install catalytic converters on the engine test cells, conduct testing on the test cells, and submit a permit application (by February 28, 2011) to revise their test cell/firing bench emission limits.

It is important to note that the emission limits for the engine test cells/firing benches were in Appendix D of all TMMWV permits up to R13-2062I. When, during the 2062J permitting process, the individual emission limits of the 178 HVAC units were removed and Appendix D eliminated,

the test cell/firing bench emission limits were also inadvertently removed from the permit. However, as permit requirement C.3 enforces the “plans and specifications” contained in permit applications, the limits were still valid.

The TMMWV facility has been the subject of many permitting actions. The following table provides a brief description of each of the previous actions:

Table 1: Previous Permitting Actions - Buffalo Plant

Permit #	Date Issued	Description
R13-2062	3/21/1997	Construction Permit for original facility.
R13-2062A	7/10/1998	Modification to increase production and authorization to use materials not originally permitted.
R13-2273	3/29/1999	Construction Permit for a collocated Automatic Transmission (A/T) Production Facility.
R13-2062B	2/25/2000	Administrative Update (A/U) to incorporate “as-built” changes to the permit.
R13-2062C	4/3/2002	Modification permit to consolidate R13-2273 and R13-2062B into one permit and reconfigure compliance determination methodology from a materials tracking basis to an actual emissions reporting basis.
R13-2062D	1/13/2004	Class I A/U to reorganize PM/PM-HAP emission limits on a Project Activity basis.
R13-2062E	1/21/2005	Class II A/U to add Heat Treatment activities to A/T production.
R13-2062F	10/28/2005	Class I A/U to add additional heat treatment combustion sources and remove unconstructed HVAC units from Appendix D.
R13-2062G	5/23/2006	Class II A/U to add HVAC units.
R13-2062H	9/14/2006	Class I A/U to increase production limits under Appendix A.
R13-2062I	12/21/2006	Class I A/U to add/modify HVAC units and eliminate unused Project Activities.
R13-2062J	7/8/2008	Class I A/U to streamline permit: consolidate Project Activities into three large groups and remove individual HVAC Unit permit limits.

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Facility

TMMWV operates a large engine and automatic transmission production facility at their Buffalo Plant. Currently, the plant is permitted to machine and assemble 550,000 4-cylinder engines, 550,000 6-cylinder engines, and 900,000 automatic transmissions at the facility. The plant is also permitted to machine axles at the facility. To accomplish this, the facility is permitted to conduct machining, welding, assembly, testing, combustion, and other ancillary activities that are part of a production facility of this type.

Relevant to the proposed modifications, TMMWV operates seven engine test cells, two transmission test cells, and two engine firing benches. The following table lists the test cells and firing benches authorized at the Buffalo Plant:

Table 2: Authorized Test Cells/Firing Benches

Source	Emission Point	Description	Control Device ⁽¹⁾
QE1S	QCE1	Engine Test Cell #1	Catalytic Converter (TC-1)
QE2S	QCE2	Engine Test Cell #2	Catalytic Converter (TC-2)
QE3S	QCE3	Engine Test Cell #3	Catalytic Converter (TC-3)
QE4S	QCE4	Engine Test Cell #4	Catalytic Converter (TC-4)
QE5S	QCE5	Engine Test Cell #5	Catalytic Converter (TC-5)
QE6S	QCE6	Engine Test Cell #6	Catalytic Converter (TC-6)
QE7S	QCE7	Engine Test Cell #7	Catalytic Converter (TC-7)
QA3S	QCA3	Transmission Test Cell #3	Catalytic Converter (TC-AT1)
QA4S	QCA4	Transmission Test Cell #4	Catalytic Converter (TC-AT4)
E1S	ZZFB	4-cyl Firing Bench	None
E2S	MZFB	6-cyl Firing Bench	None

(1) TMMWV was required by Consent Order CO-R13-E-2010-14 to install catalytic converters by June 30, 2011.

The engine test cells are designed to test the performance characteristics of the engines and are not necessarily used as a quality control/quality assurance (QA/QC) tool in the production of engines. For this reason, the engine test cells run a variety of different tests on the engines to determine their performance over a broad range of operating conditions simulated within the cells. The transmission test cells operate in the same manner except that they test the performance of the automatic transmissions. The tests used in the test cells can often last for a significant period of time and involve many variations in fuel consumption rate. The engines/transmissions tested in the test cells are not subsequently used in production vehicles.

By contrast the, the role of the firing benches is one of QA/QC. On average, 1 in 125 engines is pulled from the production line and tested to determine the quality of the production. These engine tests typically last for only a few minutes per test. The engines tested in the firing benches are subsequently used in production vehicles.

Each test cell/firing bench is direct vented to the atmosphere through a roof stack and, prior to retrofit with the catalytic converters, was uncontrolled.

Proposed Modifications

As noted above, the modifications evaluated herein primarily involve the revision of the engine test cells/firing benches emission limits to account for the results of a required performance test and subsequent retrofit of catalytic converters.

Based on the potential high emissions from the engine test cells, and pursuant to Consent Order CO-R13-E-2010-14, TMMWV has installed individual catalytic converters on each test cell to control emissions. A catalytic converter works by using a catalyst (usually platinum, rhodium and/or

palladium) to stimulate a chemical reaction in which the by-products of combustion are converted to produce less harmful and/or inert substances. Catalytic converters control CO, NO_x, and VOC emissions by: (1) oxidation of CO emissions to CO₂, (2) reduction of NO_x to oxygen and N₂, and (3) oxidation of unburnt hydrocarbons into CO₂ and water.

Other proposed changes include the installation of one (1) 6,000 gallon and one (1) 60 gallon gasoline tank and the removal of Project Activity 13 (Passenger Car Axle Machining) from the permit.

On June 22, 2011, the review of permit application of R13-2062K was placed “on-hold” by the DAQ on the basis of a request from TMMWV. Preliminary testing done by TMMWV had indicated that they could not meet the proposed CO emission rate from the test cells. After investigation, faulty catalyst monitoring was identified and corrected. Further testing indicated that the proposed CO emission rate could be met, and on August 31, 2011, the permit review was taken off “on-hold.”

SITE INSPECTION

On June 15, 2010 the writer, along with Jesse Adkins, Eric Ray, and Richard Fenton of the WVDAQ Compliance/Enforcement Section conducted a site inspection of the Buffalo Plant. The inspection was limited to the engine/transmission test cells and firing benches. Observations from the inspection include:

- Combustion exhaust emissions are not combined prior to exhaust. Each cell/bench has a dedicated stack on the plant roof.
- Exhaust emissions are direct vented to atmosphere - hoods are not used. There was no noticeable odor of combustion by-products within the testing area.
- Due to the variability in testing schedules and run times and the limitations of space, use of a catalytic converter common to all test cells was not possible. Therefore, each test cell will be retrofitted with an individual catalytic converter.

REVIEW OF APPLICANT’S EMISSIONS ESTIMATE

Engine/AT Test Cell Emissions

Emissions from the nine (9) Engine/AT Test Cells were based on data collected during stack tests conducted in September 2009 and 2010. The 2010 stack test was required by Consent Order CO-R13-E-2010-14 and was approved by the DAQ on January 2011. The 2009 test was conducted internally by TMMWV and was not formally reviewed by DAQ.

The 2010 stack test was conducted by testing emissions during worst-case (emissions-wise) engine-test patterns (as determined in the 2009 baseline testing). The engine-test patterns involved

utilizing various throttle and load conditions and, therefore, are capable of producing various emission characteristics. Pollutants tested were the highest emitting pollutants of concern from gasoline combustion: CO, NO_x and VOCs. From the testing, TMMWV was able to obtain worst-case hourly emissions per pollutant: CO = 6.79 lbs/hr, NO_x = 2.56 lbs/hr, VOCs = 0.33 lbs/hr.

To determine worst-case CO and NO_x emissions for use as limits in the permit, TMMWV, to accommodate variations in test patterns and test conditions, applied a safety factor of 1.2 to the worst-case hourly emissions generated in the performance test to accommodate further variations operator performance and deviations in the tested patterns. A safety factor of 3.0 was applied to the VOC emissions. Annual emissions were based on an aggregate engine/AT testing limit of 22,500 hours. This annual testing limit is based on usage rates of all individual test cells (*e.g.*, three test cells operating simultaneously for 1 hour would count as three hours toward this limit). Due to the impracticality of predicting the usage rates of individual test cells, annual emission limits for the test cells have been aggregated. The emission limits of the pollutants of concern are given in the following table:

Table 3: Worst-Case Emissions Engine/AT Test Cells

Pollutant	Worst-Case Per-Cell Emission Rate from Stack Test (lb/hr)	Safety Factor	Worst-Case Per-Cell Hourly Emission w/ Safety Factor (lb/hr)	Aggregate Worst-Case Hourly Emissions of All Test Cells (lb/hr)	Aggregate Annual Emissions Based on 22,500 test cell hours (ton/year)
CO	6.79	1.2	8.15	73.35	91.69
NO _x	2.56	1.2	3.07	27.63	34.54
VOCs	0.33	3.0	1.00	9.00	11.25

To address the trace amounts of total particulate matter from the test cells, TMMWV used data from their internal 2009 baseline testing: 0.12 lbs-PM/hour. To account for nominal SO₂ emissions from the test cells, TMMWV will accept a limit of 0.10 lb-SO₂/hour.

Firing Benches Emissions

Two pollutant emissions of concern (CO and NO_x) from the firing benches were based on emission factors given in USEPA's FIRE Database for internal combustion engines. The emission factors are given in lb-pollutant/gallon gasoline combusted and the worst-case emissions are, therefore, based on worst-case estimations of gasoline combusted on an hourly and annual basis. Emissions of the other pollutant of concern - VOCs - were based on data from their internal 2009 baseline testing.

To address the trace amounts of particulate matter from the test cells, TMMWV used data from their internal 2009 baseline testing: 0.95 lb-PM/hour. To account for nominal SO₂ emissions from the test cells, TMMWV will accept a limit of 0.10 lb-SO₂/hour. Due to the impracticality of predicting the usage rates of individual test benches, annual emission limits for the benches have been aggregated.

Table 4: Worst-Case Emissions Firing Benches

Pollutant	Emission Factor (lb/gal gas)	Source	Max Per-Bench Hourly Emissions (lb/hour) ⁽¹⁾	Aggregate Worst-Case Hourly Emissions of All Benches (lb/hr)	Aggregate Annual Emissions Based on 3,750 gal gasoline (ton/year)
CO	3.95	FIRE Database	41.48	82.96	7.41
NO _x	0.11	FIRE Database	1.16	2.32	0.21
VOCs	0.86	2009 Stack Test	9.03	18.06	1.61

(1) As based on a maximum hourly gasoline combustion rate of 10.5 gallons.

Storage Tank Emissions

TMMWV has proposed one new (1) 6,000 gallon and one new (1) 60 gallon gasoline/ethanol storage tank to be located at the Buffalo Plant. An emissions estimate, based on the TANKS 4.09d program was provided under AP-42, Section 7 for the 6,000 gallon tank. It was estimated that a total of 1,688.04 lbs-VOC (0.84 TPY) would be emitted per year. The 60 gallon tank will not vent to atmosphere.

Removal of Project Activity 13

TMMWV has proposed the removal of Project Activity 13 (Passenger Car Axle Machining) from the permit. This will result in a decrease of 4.45 TPY of VOCs. This amount of VOC reduction was based on the VOC emissions attributed to Project Activity 13 when the VOC emissions were previously not aggregated (last under Appendix B of 2062I).

Greenhouse Gases

As part of this permitting action, the writer conducted a facility-wide GHG PTE analysis of the Buffalo Plant. The results are presented in the following table:

Table 5: Facility-Wide Annual GHG Emissions in TPY

Source	CO ₂	N ₂ O	CH ₄	CO ₂ e
Natural Gas Combustion	60,279.31	1.11	1.16	60,647.77
Propane Combustion	797.00	0.06	0.01	815.81
Fuel Oil Combustion	1,580.00	0.02	0.02	1,586.62
Gasoline Combustion	1,455.00	n/a	n/a	1,455.00
Total	64,111.31	1.19	1.19	64,505.20

Emission factors for natural gas, propane, and fuel oil combustion were taken from AP-42 Sections 1.4, 1.5, and 1.3, respectively. The emission factor used for CO₂ emitted from a gallon of gasoline was 19.4 lb-CO₂/gallon and was taken from USEPA's website (<http://www.epa.gov/oms/climate/420f05001.htm>). Emissions were based on, with the exception of gasoline combustion, parameters limited in the permit (see Attachment B). Emissions from

gasoline combustion were based on usage of 150,000 gallons/year from engine test cells and firing benches. This is considered a very conservative number based on 22,500 limited annual hours of operation for the test cells and 3,750 limited gallons/year used in the firing benches.

Facility-Wide Post-Modification PTE

Attachment A of this Fact Sheet contains the updated facility-wide post-modification PTE of the Buffalo Plant and the emissions changes as a result of this modification. Attachment B of this Fact Sheet contains a summary of the combustion source emission calculations (including GHGs).

REGULATORY APPLICABILITY

This section will address the potential regulatory applicability/non-applicability of substantive state and federal air quality rules relevant to this permitting action.

45CSR2, 45CSR7, and 45CSR10

As the test cells and firing benches are testing internal combustion engines and not “fuel burning units” as defined under 45CSR2 and 45CSR10, the sections of those rules applicable to “fuel burning units” do not apply.

Concerning the applicability of particulate matter standards under §45-7-4.1, while it is certainly reasonable to characterize the engine test cells/firing benches as a “source operation,” the writer believes it is not appropriate in the context of 45CSR7. §45-7-10.1 states that “[p]rovisions of this rule shall not apply to . . . mobile internal combustion engines.” Further, the use of a “process weight rate” to determine emission limits under Rule 7 renders applicability to straight combustion sources as problematic (and rather absurd). Rule 7 has not previously been applied to the engine test operations at the Buffalo facility and shall not be in this case.

Concerning the applicability of the in-stack SO₂ limitation of 2,000 ppm_v given under §45-10-4.1, any applicability to this standard would be nominal as there exists only trace SO₂ emissions from the engine test cells/firing benches.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

This permitting action addresses, pursuant to Consent Order CO-R13-E-2010-14, the revision of emission limits associated with the engine test cells and firing benches. As noted above in Attachment A, the proposed increase in potential-to-emit of several pollutants exceeds that which defines the action as a “modification” under §45-13-2.17a.

Therefore, as required under §45-13-8.3 (“Notice Level A”), TMMWV placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on March 2, 2011 in *The Charleston Gazette*. The affidavit of publication for this legal advertisement was submitted on April 27, 2011.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

Putnam County is classified as “in attainment” with all criteria pollutants except PM_{2.5}. Therefore, as the Buffalo Plant is not a “listed source” under §45-14-2.43, the major source applicability threshold for all pollutants except PM_{2.5}, NO_x and SO₂, is 250 TPY. The post-modification PTE of all criteria pollutants is less than 250 TPY and, therefore, the provisions of 45CSR14 do not apply.

Concerning GHGs, the current estimate of post-modification CO₂e is less than 100,000 TPY (see above) and, therefore, the facility is not defined (pursuant to §45-14-2.80(e)(2) of Rule 14 to take effect on June 1, 2011) as a major source for GHGs.

45CSR19: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution Which Cause or Contribute to Non-Attainment - NON APPLICABILITY

Putnam County is classified as “in non-attainment” with PM_{2.5}. NO_x and SO₂ are defined under §45-14-2.61(c) as precursors to formation of PM_{2.5}. Therefore, the major source applicability threshold for these pollutants is 100 TPY. The post-modification PTE of these pollutants is less than 100 TPY and, therefore, the provisions of 45CSR19 do not apply.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The TMMWV facility, defined under Title V as a “major source,” was issued a Title V permit on October 6, 2008. Changes authorized by the proposed permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit (which is the operation of the plant) shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

40 CFR 60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Subpart Kb applies to “each storage vessel with a capacity greater than or equal to 75 m³ [19,813 gallons] that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984” except for “storage vessels with a capacity greater than or equal to 151 m³ [39,890 gallons] storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa).” TMMWV is proposing, as part of this permitting action, two ethanol/gasoline storage tanks each with a capacity of less than 19,813 gallons. Therefore, these tanks are not subject to the requirements of Subpart Kb.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the Gallipolis Ferry facility and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM₁₀), Particulate Matter less than 2.5 microns (PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects.

The primary non-criteria pollutant of concern in gasoline combustion is benzene. Benzene - which is defined as a HAP - is not added to vehicle fuels such as gasoline or diesel, but is formed during their manufacture. Emission factors for mobile source benzene emissions are not available in AP-42 or the FIRE database. However, using an on-road emission factor presented in a USEPA document (454/R-98-011) concerning benzene emissions, it is possible to conservatively calculate an approximation of the potential benzene emissions from engine testing at the Buffalo facility.

The document gives a worst-case on-road benzene emission factor from gasoline combustion in Light-Duty Gasoline Vehicles of 0.088 grams-benzene/vehicle-mile traveled. If conservatively estimated that the annual 22,500 hours of engine testing in the test cells is approximate to 50 miles per hour, the total equivalent distance traveled during the tests would be 1,125,000 miles. Using the factor above, this would produce 99,000 grams-benzene/year or 218 pounds-benzene/year from the engine test cells.

Similarly, for the firing benches, assuming the 3,750 gallons of gasoline combusted per year equates to driving at 30 miles per gallon, the total equivalent distance traveled during the tests would be 112,500 miles. Using the factor above, this would produce 9,900 grams-benzene/year or 22 pounds-benzene/year from the firing benches. Combining the above calculations, the aggregate worst-case benzene emissions from the test cells and firing benches can be estimated to be approximately 240 pounds *per year* (0.12 tons/year). It is important to note that this emission rate is not an increase associated with the modification evaluated herein, only a conservative estimate of benzene emissions already produced by engine testing at the facility. 45CSR27 - “TO PREVENT AND CONTROL THE EMISSIONS OF TOXIC AIR POLLUTANTS” - sets an application threshold for benzene of 1,000 pounds per year.

The following table details the carcinogenic risk of benzene according to the Integrated Risk Information System (IRIS) database.

Table 5: Potential HAP Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Benzene	VOC	Yes	A: Known Carcinogen

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of toluene refer to the IRIS database located at www.epa.gov/iris.

COMPLIANCE DEMONSTRATION: MONITORING, RECORD-KEEPING, AND REPORTING REQUIREMENTS

Compliance with the engine testing limits are demonstrated primarily on the acceptance of the worst-case hourly emission factors (based on, for the pollutants of concern, stack testing) combined with parametric monitoring of hours of operation (test cells) and gasoline combusted (firing benches). The annual hours of operation of the test cells and the annual gasoline combustion rate of the firing benches are limited under A.2(d)(2) and A.2(d)(3) of the permit and required to be monitored under A.8(g) and A.8(h), respectively. All hourly emissions are accepted as based on a reasonable worst-case testing scenario and are not, therefore, directly or parametrically monitored.

The use of catalytic converters on the test cells are required under A.2(d)(1) and appropriate catalyst replacement is required under A.5(c) (as well as catalyst temperature modeling under A.7(a)(1)).

Future validity testing of the CO and NO_x emissions from the engine test cells are required to be addressed under a general performance test plan under A.6(a).

TESTING OF OPERATIONS

A general requirement to develop and maintain a performance test plan that includes engine test cells was added to the permit. The pollutants of concern with the engine test cells are CO and NO_x. This requirement (minus testing of engine test cells) was in previous iterations of the permit but was removed in 2062J. The writer believes it is appropriate to place this requirement back in the permit.

CHANGES TO PERMIT R13-2062J

The following substantive changes were made to permit R13-2062J:

- The emissions under row three of Table A.1(a) were adjusted downward to account for the permanent removal of Project Activity 13.
- Requirements concerning engine test cells/benches were added under A.2(d).
- Emission limits of engine test cells/benches and other combustion units were added under A.2(f). The emission limits of other combustion units did not change as a result of this modification but were previously (and erroneously) removed from the permit.
- The two new gasoline storage tanks were added under Table A.4(a).
- Requirements concerning the catalytic converters were added under A.5(c).
- Included a general requirement to develop and maintain a performance test plan that includes engine test cells. This requirement was in previous iterations of the permit but was removed in 2062J. The writer believes it is appropriate to place this requirement back in the permit.
- Requirement to record aggregate annual engine test cell hours of operation was added under A.8(g).
- Requirement to record aggregate annual gasoline combustion in the firing benches was added under A.8(h).
- A requirement was added under A.8(l) to maintain a combustion unit list at the facility.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-2062K to Toyota Motor Manufacturing West Virginia for the above discussed modification to the Buffalo Plant located in Buffalo, Putnam County, WV.

Joe Kessler, PE
Engineer

Date

Fact Sheet R13-2062K
Toyota Motor Manufacturing West Virginia
Buffalo Plant